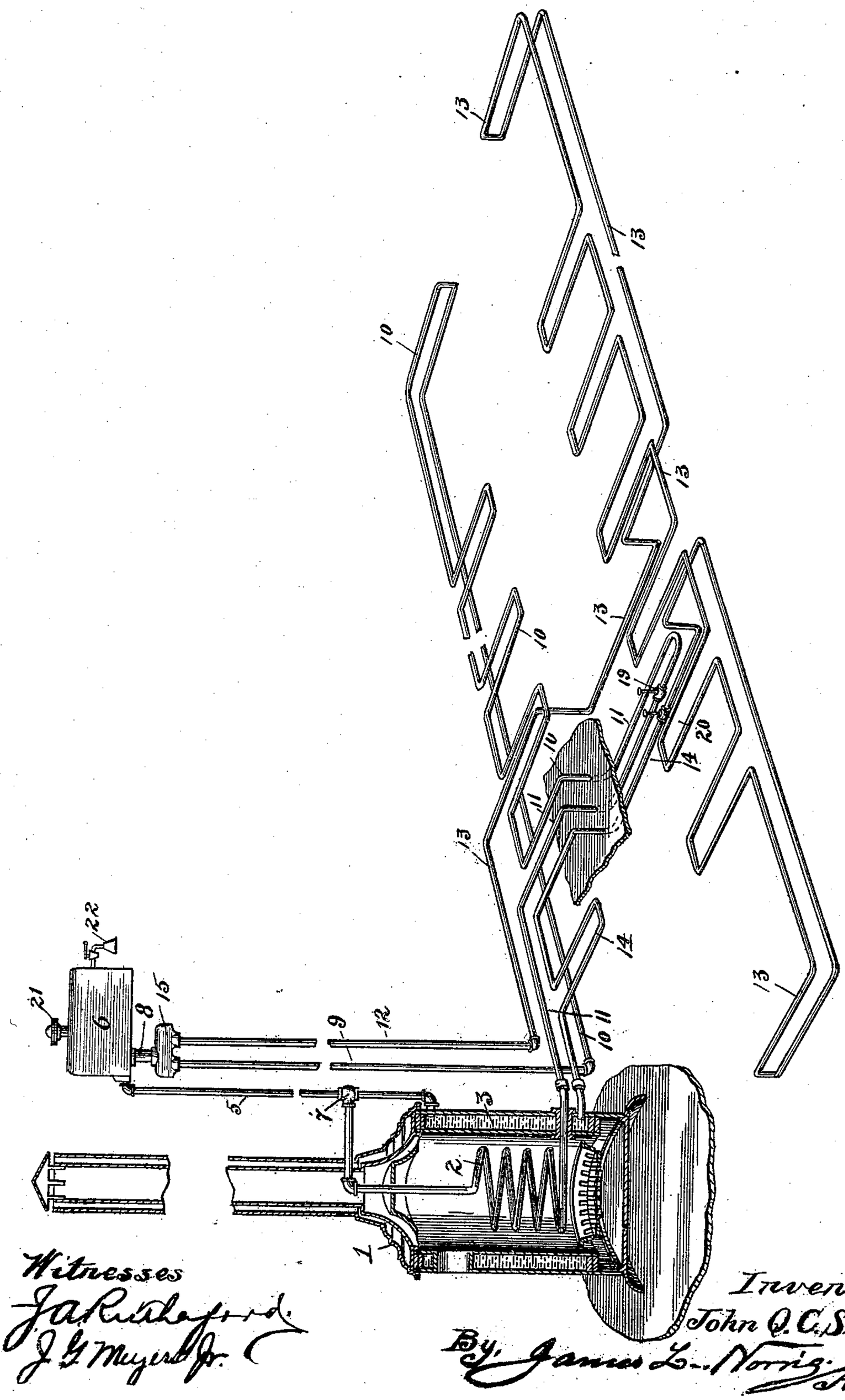
(No Model.)

J. Q. C. SEARLE.

CAR HEATING APPARATUS.

No. 538,184. Patented Apr. 23, 1895.



UNITED STATES PATENT OFFICE.

JOHN Q. C. SEARLE, OF CHICAGO, ILLINOIS.

CAR-HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 538,184, dated April 23, 1895.

Application filed October 9, 1890. Serial No. 367,565. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. C. SEARLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Car-Heating Apparatus, of which the following is a specification.

This invention relates to an improved apparatus for heating cars of that class in which liquid, preferably water, is heated in a plurality of independent liquid-heating passages arranged in a heater that is carried by the car and the temperature subsequently equalized in the temperature-equalizing chamber, pipe or passage communicating with the upper ends of the said liquid heating passages, and finally causing the liquid to be divided into separate flows and delivered into a plurality of independent radiators, situated upon opposite sides of the car, communicating with the lower ends of said liquid heating passages, whereby the heating capacity is increased and provision made for a higher temperature of the liquid to be supplied to the independent radiators without enlarging the heater.

The apparatus may also comprise one or more cocks or valves, whereby an even circulation and an even temperature can be effected on each side of the car.

The annexed drawing is a perspective view of a car-heating apparatus, illustrating my invention, the heater being in section, showing the combination of parts whereby the liquid that is heated in a plurality of independent liquid heating passages, and its temperature equalized and freed from air and steam is conducted into a plurality of independent radiators situated upon opposite sides of the car, with means for finally returning the cooled liquid to the lower ends of the liquid heating passages from which it begins to circulate when heated.

Referring to the drawing, A represents a part of the floor of a railway car.

The numeral 1, represents a heater carried by the car.

2 and 3 designate a plurality of liquid heating passages in the heater, of any approved form or construction that will answer to heat the liquid that warms the car.

The numerals 10 and 13, represent a plurality of independent radiators communicating with the liquid heating passages at their lower ends, they being situated upon opposite sides of the car whereby an equal distribution of heat can be secured throughout the car.

The numerals 19 and 20 represent two cocks or valves whereby an even circulation and an even temperature may be produced on each side of the car. Should the heated liquid circulate faster through the radiators on one side of the car than on the other, one of the valves may be partly closed and the circulation thereby be retarded sufficient to cause both flows to simultaneously reach the heater.

The numeral 7 represents a liquid uniting fitting connected to the upper ends of the liquid heating passages, whereby the separate flows may be united.

The numeral 5 represents a temperature equalizing pipe in which the temperature can be equalized and by means of the fitting 7 can have a communication with the upper ends of the liquid heating passages.

The numeral 15 represents a liquid dividing fitting connected to the upper ends of the independent radiators in which the heated liquid is divided into separate flows and supplied to said radiators.

The numeral 8 represents a descending pipe connected with the fitting. The expansion chamber is designated by the numeral 6 and communicates by means of the pipes 9 and 12, with the entire system. The heated liquid may be freed from air and steam while supplied to the independent radiators. The temperature equalizing pipe 5, and descending pipe 8, communicate with the entire system. The expansion chamber is provided with a safety valve 21 to prevent explosions. A funnel cock 22 is connected with the expansion chamber to enable the apparatus to be supplied with water or other liquid, and through which any loss of liquid by undue pressure or otherwise may be supplied. The cooled liquid from the independent radiators is returned to the lower end of the liquid heating passages through pipes 11 and 14.

In four other applications which are numbered in serial 383,753, 383,754, 383,755 and 383,756, filed March 4, 1891, which have merged into Letters Patent Nos. 461,280, 461,281,

461,282 and 461,283, each dated October 13, 1891, there are set forth various modifications of my improved means for heating railway cars.

In one of said applications, Serial No. 383,753, now Letters Patent No. 461,280, dated October 13, 1891, the water uniting fitting 7, and water-dividing chamber or passage 15, are omitted, the two separate flows of water being conducted by two separate pipes, from the liquid heating passages to the combined water-uniting, expansion and water-dividing chamber, and from thence by two separate pipes to the independent radiators that heat the car.

In another of said applications, Serial No. 383,754, now Letters Patent No. 461,281, dated October 13, 1891, the pipe 8, and water-dividing chamber or passage 15, are omitted and the descending pipes are connected directly to the combined expansion and water-dividing chamber 6 in which the liquid is freed of air and steam, divided into separate flows and supplied to said radiators.

In another of said applications, Serial No. 383,755, now Letters Patent No. 461,282, dated October 13, 1891, the water uniting fitting 7, is omitted, and the heated water is conducted to the radiators by a combined liquid-uniting, temperature equalizing and expansion-chamber, in which the separate flows are united, the temperature equalized and freed of air and steam, a single pipe, and by a water-dividing chamber in which the liquid is divided.

In another of said applications, Serial No. 383,756, now Letters Patent No. 461,283, dated October 13, 1891, is set forth an apparatus that comprises a liquid uniting fitting connected to the upper ends of the liquid heating passages for uniting the separate flows, a single pipe in which the temperature is equalized, a liquid dividing fitting connected to the upper ends of the radiators, in which fitting the liquid may be freed of air and steam, divided into separate flows and delivered to the radiators.

The invention set forth herein is not confined to details of construction as the invention can be embodied in various forms without departing from my invention, so long as the essentials particularized herein are followed for securing a high temperature of the liquid that is supplied to the plurality of independent radiators located upon the opposite sides of the car, and thereby an even temperature secured throughout the car.

What I claim is—

1. The combination with a car of a heater, carried by the car, a plurality of independent liquid-heating passages in said heater, a plurality of independent radiators communicating with the liquid-heating passages, at their lower ends and situated upon opposite sides of the car, and a temperature-equalizing-chamber, pipe or passage communicating with the upper ends of the said liquid-heating passages, and with the radiators, substantially as and for the purpose specified.

2. The combination with a car of a heater, carried by the car, a plurality of liquid-heating passages in said heater, a plurality of independent radiators communicating with the liquid-heating passages at their lower ends and situated upon opposite sides of the car, a liquid-uniting fitting communicating with the upper ends of the liquid-heating passages, a liquid-dividing fitting communicating with the independent radiators, and an expansion chamber communicating with the system, substantially as and for the purpose specified.

3. The combination with a car of a heater, carried by the car, a plurality of liquid-heating passages in said heater, a plurality of independent radiators communicating with the liquid heating passages at their lower ends and situated upon opposite sides of the car, a temperature equalizing chamber, pipe or passage communicating with the upper ends of the liquid-heating passages, and with the radiators, and one or more cocks or valves in the pipes leading from said radiators to the lower ends of the liquid heating passages, substantially as and for the purpose specified.

In testimony whereof I have affixed my signature in presence of two witnesses.

J. Q. C. SEARLE.

Witnesses:
PERCY B. HILLS,
JAMES A. RUTHERFORD.